

## A DESCRIPTION OF THE MALE *EPERIGONE MODICA* (ARANEAE: LINYPHIIDAE)<sup>1</sup>

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ABSTRACT: The male of *Eperigone modica* Millidge, 1987, previously known only from the female, is described and illustrated. Variation in both sexes is discussed.

The recent revision of *Eperigone* by Millidge (1987) has made it possible to deal more easily with this large, homogeneous group of erigonine spiders. *Eperigone modica* was described by Millidge from a single female. Both sexes and immatures of *E. modica* were collected in litter samples from the edge of a small permanent marsh, on the northern outskirts of Nogales, Arizona. For a detailed description of the genus *Eperigone*, see Millidge op.cit.

### METHODS

Specimens were examined and illustrated with a Bausch & Lomb StereoZoom<sup>®</sup> 7 binocular microscope, equipped with 15X eyepieces. Drawings were made using an ocular grid, transferring the image by eye to gridded paper. Measurements were made with an ocular micrometer, accurate to 0.01 mm. For total length, carapace length, and carapace width, measurements were made to the nearest 0.05 mm. The position of metatarsal trichobothria (TmI and TmII) were measured to the nearest 0.01 mm. Cephalic index is carapace length divided by carapace width. The Tm values (%) are determined by dividing the distance from the proximal end of the metatarsus to the trichobothrium by the total length of the metatarsus.

### *Eperigone modica* Millidge, 1987

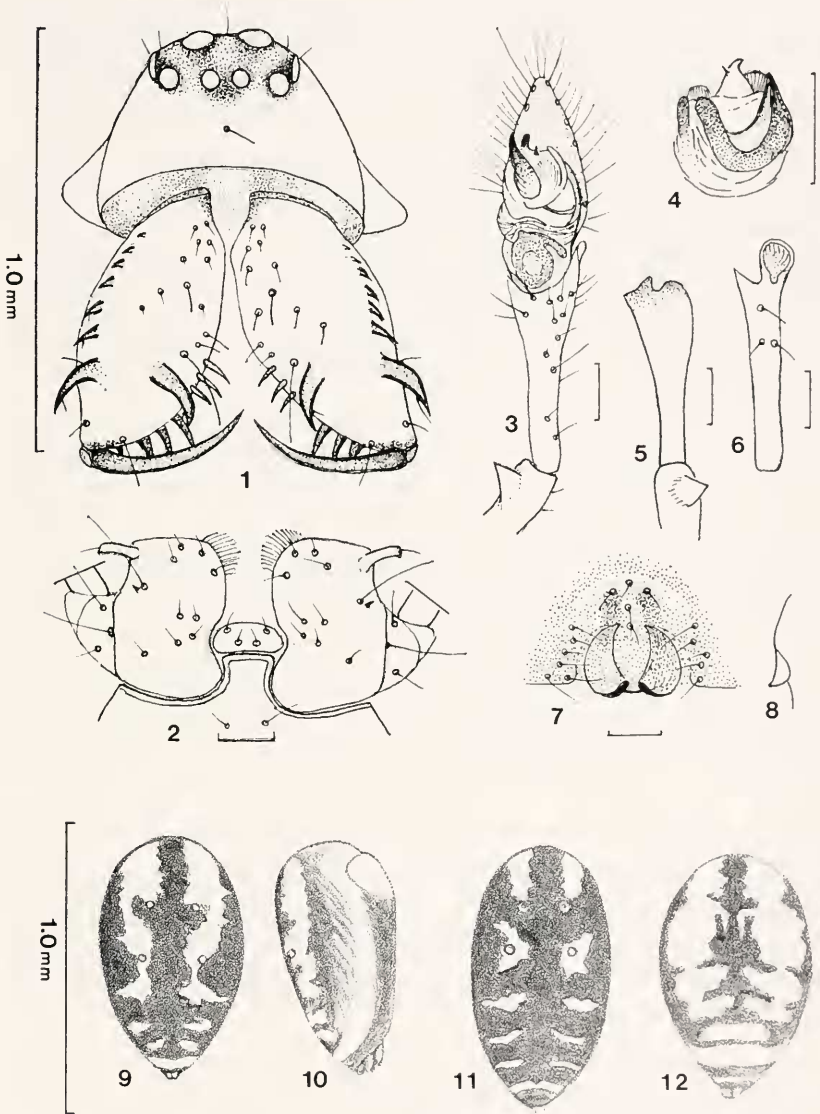
Figures 1-12

*Eperigone modica* Millidge, 1987: 38-40, figs. 139-140. Described from single female.

DIAGNOSIS:—Male with two exceptionally prominent spurs (greatly enlarged denticles) on opposite margins of each chelicera (Fig. 1), and an unusual stalk-like projection on the anterio-lateral margin of the endite (Fig. 2). Ventral projection of embolic division tooth-like, dark and prominent (Fig. 3). Palpal tibia relatively long and slender (Figs. 3, 5, 6). Palpal patella with small, conic spur (Figs. 3, 5). Female epigynum divided longitudinally with distinctly upturned (in ventral view) and incurved tips of lateral arms (Figs. 7, 8). Metatarsus IV with trichobothrium.

<sup>1</sup> Received May 3, 1993. Accepted May 24, 1993.

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Figures 1-12. *Eperigone modica* Millidge. 1. Male chelicerae, anterior. 2. Male endites, ventral. 3. Palp, ecto-ventral. 4. Embolic division, mesal. 5. Palpal tibia, ventral. 6. Palpal tibia, dorsal. 7. Epigynum, ventral. 8. Epigynum, lateral. 9-12. Abdominal pigment pattern, male. 9. Typical, dorsal. 10. Lateral. 11. Darkest, dorsal. 12. Lightest, dorsal. Unlabeled scales 0.1 mm.

**DESCRIPTION.**—**Male.** 20 specimens measured: total length 2.55 (2.00-2.96), cephalothorax length 1.24 (0.95-1.49), cephalic index 1.37 (1.28-1.63), TmI 0.68 (0.64-0.73), TmII 0.66 (0.58-0.74). Chelicerae with three large promarginal and four retromarginal teeth. PME relatively close, from one half to two thirds diameter apart (Fig. 1). Single large seta on clypeus below AME, about one-half distance from AME to ventral margin of clypeus. Row of six setigerous denticles along antero-lateral margin of chelicera, increasing in size distally, with a very large, curved spur just beyond end of row. A similar, unique, and equally large spur is situated on the antero-medial margin (Fig. 1). Viewed from above these pairs of spurs look very much like the horns of a team of oxen. No discernible file in either sex. Endites with unique stalk-like projection tipped with seta on antero-lateral corner (Fig. 2).

Ventral projection of embolic division large, tooth-like, and darkly sclerotized (Fig. 3, 4). Median projection curved and relatively lightly sclerotized. Dorsal apophysis of palpal tibia rounded and spatulate (Fig. 6). Ventral apophysis bilobate, somewhat irregular in outline, not projecting as far distally as dorsal apophysis (Fig. 5). Patella of tibia with small, conical ventral spur (Fig. 3, 5). Proximal two-thirds of ventral surface of palpal femur with row of six small denticles with setae at tip of denticle. Distal prolateral surface of palpal femur with four small denticles each tipped with setae.

Cephalic portion of carapace orange-brown, slightly darker around eyes, and essentially flat. Posteriorly cephalic portion with 'shield-like' area, thinly delineated with black, then light. Thoracic portion lighter, yellow, with dusky radii and relatively broad, dusky marginal band. Cervical groove darkened with dark line extending halfway to posterior edge of carapace. Chelicerae clear orange-brown. Legs light brown. Sternum dusky brown, slightly darker toward margin. Abdomen gray to nearly black with irregular pattern of six cream-colored chevrons (Figs. 9, 10, 11, 12). Sixth chevron usually not divided and continued laterally to join lighter lateral stripe (Fig. 10). Dorsally anterior two-thirds of abdomen with general appearance of median and lateral dark, irregular, longitudinal stripes, created by the joining of the first three lightly colored chevrons. Venter gray, evenly colored. Spinnerets ringed with darker gray.

The male, using the key provided by Millidge (1987, pp. 58), would belong to those species with an embolic division of trilobate form. It is readily separated from each of these species by the form of the palpal tibial apophyses.

**Female.** 9 specimens measured: total length 2.42 (2.15-2.86), cephalothorax length 1.08 (0.90-1.21), cephalic index 0.74 (0.69-0.85), TmI 0.68 (0.66-0.70). Chelicerae without the denticles and spurs seen in males. Usually four promarginal teeth, second and third largest; four or five retromarginal teeth with proximal two closely paired. No spur on endites as in males. Pigmentation essentially as in male but usually with less contrast in pattern, and with smaller chevrons. Darkened line of cervical groove not further extended posteriorly as in male. Lateral arms of epigynum wide, semi-circular in outline, gray to orange-brown with darker margin around genital opening (Fig. 7). Posteriorly tips of lateral arms upturned (Fig. 8). Spermathecae brown, clearly visible through cuticle.

Specimens of females from this series were compared with the holotype female in the American Museum of Natural History by Dr. Norman Platnick, who stated that the identification as *modica* seems appropriate.

**Immatures.** The immatures collected were antepenultimate and penultimate instars. The base color of the carapace varies from very light gray for

younger instars to a light olive-brown in older instars. The dusky areas (e.g. radii and marginal band) seen in the adults are more clearly visible, standing out against the lighter background color. Distal ends of leg segments were usually with darker bands. The abdominal pattern of chevrons is somewhat less variable in shape and position than in adults, otherwise it is identical.

**VARIATION.**—Cheliceral denticles and setae of males varied to a minor degree in size, position, and number; such variation was associated in part with overall size. In one specimen the distal denticle on the antero-lateral margin was greatly enlarged, creating a second spur. Larger specimens tended to have larger denticles. A few specimens had paired denticles (usually the third) in the antero-lateral row on the chelicerae. The values for TmI were the least variable statistic for both sexes. TmII was measured to evaluate its usefulness as a substitute for TmI when the first legs were damaged or missing. The pigmentation of the male abdomen varied from very light to darker with most individuals as illustrated in Figs. 9 and 10. Female abdomens had less clearly outlined chevrons that tended to be narrower transversely than those of males.

**NATURAL HISTORY.**—These specimens were taken in damp leaf litter at the edge of a small permanent pond with a boggy margin. The relatively large number of males (23) to females (10) suggested that this population had only recently begun to mature. Associated with this species were comparable numbers of *Grammonota gentilis* (Banks), dominated by adults of both sexes. The pigmentation pattern of *G. gentilis* is similar to that of *E. modica*. Somewhat less abundant in the litter were adult *Glenognatha emertoni* Simon. *Pardosa concinna* Thorell, both adults and immatures, were common on the litter surface and on nearby drier margins of the bog.

**DISTRIBUTION**—Southern New Mexico and Arizona.

**MATERIAL EXAMINED.**—Nogales, Santa Cruz County, Arizona, in damp leaf litter at edge of boggy margin of small lake; 11 January, 1991, 23 males, 10 females and 13 late instar subadults. Voucher specimens of both sexes and immatures have been deposited in the Museum of Comparative Zoology (Cambridge), United States National Museum (Washington, D.C.), Canadian National Collection (Ottawa), American Museum of Natural History (New York), and Natural History Museum (London).

## REMARKS

At first glance the exuberant lateral denticles and spurs on the chelicerae of male *E. modica* (Fig. 1) and the small, conical spur on the palpal patella (Fig. 3), suggest a close relationship with the genus *Erigone*. However, the

structure of the embolic division of the palp (Fig. 4) is characteristic of *Eperigone* as defined by Millidge (1987). Female *modica* have an epigynum with a divided ventral plate, typical of the genus *Eperigone*. *E. modica* has a distinctly patterned abdomen, with chevrons, a feature seen in many species of the genus.

#### ACKNOWLEDGMENTS

I am grateful to Herbert Levi (MCZ), Charles Dondale (CNM) and Jonathan Coddington (USNM), each of whom reviewed the manuscript and provided many useful suggestions. Dr. Norman Platnick (AMNH) kindly compared my specimens of *E. modica* with the holotype. Comments and corrections made by two anonymous reviewers were greatly appreciated.

#### LITERATURE CITED

- Millidge, A. F. 1978. The Erigonine Spiders of North America. Part 8. The Genus *Eperigone* Crosby and Bishop (Araneae, Linyphiidae). Amer. Mus. Nat. Hist., Novitates No. 2885, pp. 1-75.

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## SOCIETY MEETING OF APRIL 28, 1993

### SURVEYING AND CONSERVATION OF LEPIDOPTERA IN OHIO

Dr. Eric H. Metzler

Ohio Department of Natural Resources

Although there are amateur scientists studying most taxonomic groups of insects, those folks interested in Lepidoptera must form the largest and most visible section. How best to harness the vast information and enthusiasm represented by these dedicated researchers? The fifth and final meeting of the 1992-1993 season was highlighted by a fine presentation by Eric Metzler on how the relatively recent organization, the Ohio Lepidopterists' Society, brought together about 300 amateur and professional scientists for the common goal of surveying and conservation of Lepidoptera in Ohio. Mr. Metzler, employed in the Ohio Department of Natural Resources, is himself a long-time lepidopterist, starting his interest as a young boy in Michigan, and co-founding the Ohio Lepidopterists' Society in 1979.

The original intent of the Society was the Lepidoptera Survey, and this clicked immediately with the Ohio Division of Wildlife. Through published records, specimen data in private collections and museums, countless hours of fieldwork in all parts of the state, and financial support from the state for travel and data entry, the survey database now encompasses about 96,000 records for 2600 species of butterflies and moths. Although the survey started with butterflies due to general public interest, published information and the interest of the Society members, it has moved to include leps such as large silk moths, noctuids, and geometrids. The focus now is on the Microlepidoptera, for which Annette Braun's collection, located at the Academy of Natural Sciences, is one of the most important for Ohio. Mr. Metzler reports that even some die-hard butterfly specialists are now

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